"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

2/2 053 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0141364

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL STUDY OF THE DISTRIBUTION OF THE LOCAL TEMPERATURE CHARACTERISTICS OF THERMAL DECOMPOSITION PYROLYSIS PROCESSES IN AN ETHYL ALCOHOL DIFFUSION FLAME. THE FREE ELECTRON CONCENTRATION DISTRIBUTION IS ALSO DETERMINED. IT IS SHOWN THAT ELECTRICAL PHENOMENA IN THE FLAME MAY HAVE A CONSIDERABLE EFFECT ON THE MASS TRANSFER PROCESSES OCCURRING DURING COMBUSTION.

FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT TEKHNICHESKOI TEPLOFIZIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC 621.771.8

CHARUKHINA, K. Ye., GOLOVANENKO, S. A., MASTEROV, V. A., and KAZAKOV, N. F.

"Bimetallic Joints"

Bimetallicheskiye Soyedineniya [English Version Above], Moscow, Metallurgiya Press, 1970, 280 pp

Translation of Annotation: An analysis is made of the processes of formation of bonds, and the structure and properties of bimetallic joints produced by combined rolling, pressing, diffusion welding in a vacuum, and other methods of joining metals in the solid phase. The structural state of many bimetallic joints widely used in industry and promising for new branches of technology is analyzed.

The book is intended for engineering and technical workers in metallurgy, machine building, electronics, electrical engineering, and other branches of industry. It may also be useful to university students. 113 figures; 48 tables; 254 bibliographic references.

Table of Contents

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

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CHARUKHINA, K. Ye., et al., Bimetallicheskiye Soyedineniya, Moscow, Metallurgiya Press, 1970, 280 pp

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USSR

CHARUKHINA, K. Ye., et al., Bimetallicheskiye Soyedineniya, Moscow, Metallurgiya Press, 1970, 280 pp

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CHARUKHINA, K. Ye., et al., Bimetallicheskiye Soyedineniya, Moscow, Metallurgiya Press, 1970, 280 pp

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR UDC: 621.372.8.092.22

BELYACHENKO, V. P., GORSKAYA, R. S., LAZERSON, A. G., RYZHENKO, B. F., CHARUSHKIN, B. D.

"Approximate Calculation of the Characteristics of Film-Type Decelerating Systems on a Dielectric Substrate"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1971, vyp. 1, pp 134-137 (from RZh-Radiotekhnika, No 5, May 61, Abstract No 5B108)

Translation: The proposed method, which can be used to calculate the dispersion characteristics of film-type rod decelerating systems on a dielectric substrate, utilizes the well known results of investigation of film-type rod systems without a dielectric. The method of perturbation and the method of equivlaent substitution are used to derive computational formulas. Two illustrations, bibliography of five titles. Resumé.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC: 518.517.948

CHARUSHNIKOV, V. D.

"Optimal Approximation Methods for Solving Linear Problems"

Minsk, Differentsial'nyye Uravneniya, vol. 7, No. 2, February 1971, pp 344-352

Abstract: The problem posed by this article is to solve the equation

$$Au = F \quad (u \in E,\ f \in F),$$

where E and F are two linear normalized spaces, under the assumptions that E_n and F_n are n-dimensional subspaces of E and F, that P_n is an operator representing space E in E_n, and that Q_n is an an operator representing F in F_n. The problem represented by the equation above is replaced by the approximation

$$A_n u_n = f_n \quad (u_n \in E_n,\ f_n \in F_n),$$

where the quality of the approximation method is characterized by the norm of the operator error

$$R_n = A^{-1} - A_n^{-1} Q_n.$$

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CHARUSHNIKOV, V. D., Differentsial'nyye uravneniya, Minsk, vol. 7, No. 2, February 1971, pp 344-352

It is further assumed that the first equation is in Hilbert space H and that the operator satisfies the following conditions: that A is self-conjugate and is positively determined; that A^{-1} is fully continuous; and that the region D(A) is compact in space H.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC: 535.243

GVERDTSITELI, T. A., SHARIKADZE, A. P., CHARUYEV, N. G., KOVZCHASHVILI, U. A., Scientific Research Institute of Automation of Production Processes in Industry

"A Photometer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329408, Division G, filed 15 Jun 70, published 9 Feb 72, p 161

Translation: This Author's Certificate introduces a photometer containing two radiation sources with two light filters, a modulator, a commutator, three photoreceivers, amplifiers, and a registration module. Two of the photoreceivers produce commutating signals. As a distinguishing feature of the patent, the sensitivity of measurements is improved by introducing integral interrupters into the circuit for registration of the intensity of the working and comparison signals. The interrupters operate in the line switch mode, and their control elements are connected to the outputs of the commutating signal amplifiers. These integral interrupters are connected to alternating current sources in parallel with storage capacitors.
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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

GVERDTSITELI, T. A., USSR Author's Certificate No 329408

Two slots are made in the commutating disc. These slots are no longer than the diameter of the light filters, and are located at different distances from the center of the disc.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC 621.382.2

CHASHCHIN, S. P., SAF'YAN, T. L., BARYSHEV, N. S., AVER'YANOV, I. S., and MARKINA, N. P.

"$Pb_{1-x}Sn_xSe$ Monocrystalline Photodiodes"

Leningrad, Fizika i tekhnika poluprovodnikov, vol. 5, No. 8, 1971, p 1633

Abstract: The Pb-Sn-Se combination has promise as an infrared sensor in a broad range of wavelengths. This brief communication shows that annealing the crystals of this combination is unnecessary to obtain the photosensitivity in the p-n junction formed by the crystals since there is always a region of low vacancy concentration when the junction is obtained by deviating from the stoichiometric state. The authors describe the method they have developed for preparing Pb0.95Sn0.05Se diodes of the p-type with a carrier concentration of 10^{19} per cubic centimeter. A curve of the spectral distribution for the photosensitivity of such diodes at the temperature of liquid nitrogen is given. The curve shows a maximum at a wavelength of about 10 microns.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DETERMINATION OF CALCIUM IN MAGNETIC ALLOYS -U-

AUTHOR-(04)-CHASHCHINA, O.V., SLEZKO, N.I., OTMAKHOVA, Z.I., ZARUBINA, R.F.

COUNTRY OF INFO--USSR

[illegible] 180-1

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MAGNETIC ALLOY, CALCIUM, METAL CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1883 STEP NO--UR/0032/70/036/002/0180/0181

CIRC ACCESSION NO--AP0118845

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

PASSED THROUGH 11 G OF ANION EXCHANGER AB-17-8 IN THE CL PRIME NEGATIVE FORM. IN THIS WAY FE, CU, AND CO WERE SEPD. AND CA WAS DETD. IN SOLN. IN THE PRESENCE OF AL 8, TI 0.5, AND NI 14PERCENT BY EMISSION SPECTROGRAPHY.

FACILITY: TOMSK. GOS. UNIV. IM. KUIBYSHEVA, TOMSK, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

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CHARUSHNIKOV, V. D., Differentsial'nyye uravneniya, Minsk, vol. 7, No. 2, February 1971, pp 344-352

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GVERDTSITELI, T. A., SHARIKADZE, A. P., CHARUYEV, N. G., KOVZCHASHVILI, U. A., Scientific Research Institute of Automation of Production Processes in Industry

"A Photometer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329408, Division G, filed 15 Jun 70, published 9 Feb 72, p 161

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GVERDTSITELI, T. A., USSR Author's Certificate No 329408

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USSR

UDC 621.382.2

CHASHCHIN, S. P., SAF'YAN, T. L., BARYSHEV, N. S., AVER'YANOV, I. S., and MARKINA, N. P.

"$Pb_{1-x}Sn_xSe$ Monocrystalline Photodiodes"

Leningrad, Fizika i tekhnika poluprovodnikov, vol. 5, No. 8, 1971, p 1633

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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DETERMINATION OF CALCIUM IN MAGNETIC ALLOYS -U-

AUTHOR-(04)-CHASHCHINA, O.V., SLEZKO, N.I., OTMAKHOVA, Z.I., ZARUBINA, R.F.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 180-1

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MAGNETIC ALLOY, CALCIUM, METAL CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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CIRC ACCESSION NO--AP0118845

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 013
CIRC ACCESSION NO--AP0118845
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A 0.25-G SAMPLE OF ALLOY CONTG. 0.9-0.003PERCENT CA WAS DISSOLVED IN 5 ML 4N HNO SUB3. THE SOLN. WAS EVAPD. TO A SYRUPY CONSISTENCY AND, AFTER ADDN. OF 20 ML ION HCL, IT WAS PASSED THROUGH 11 G OF ANION EXCHANGER AB-17-8 IN THE CL PRIME NEGATIVE FORM. IN THIS WAY FE, CU, AND CO WERE SEPD. AND CA WAS DETD. IN SOLN. IN THE PRESENCE OF AL 8, TI 0.5, AND NI 14PERCENT BY EMISSION SPECTROGRAPHY. FACILITY: TOMSK. GOS. UNIV. IM. KUIBYSHEVA, TOMSK, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC 576.85(478)

MARITS, A. A., CHASHCHINA, I. N., CHERVINSKAYA, S. I., ELKIS, K. U., KORNES, R. V., BELYAYEVA, N. S., CHEBAN, Ye. D., KOTSEFAN, A. S., DOBRUSKINA, S. V., GURCHIOGLUYANTS, L. V., and MIKHAYLOVA, A. A., Moldavian Scientific Research Institute of Hygiene and Epidemiology and Kishinev Sanitary Epidemiological Station

"Fermentation Reaction Types and Colicinogenic Properties of Shigella Sonnei Circulating in the City of Kishinev, and Determining Their Sensitivity to Antibiotics"

Kishinev, Zdravookhraneniye, No 5, Sep/Oct 71, pp 7-9

Abstract: The Shigella sonnei strain accounted for 97.9-99 percent of the cases of dysentery in Kishinev in 1968-70. The object of this study was to identify the types of fermentation reactions of Shigella sonnei isolated in 1968-70 (4,507 cultures), and to study their colicinogenic properties and sensitivity to antibiotics. Shigella bacilli isolated from victims in 1968 were found to be primarily fermentation type II (71.4 percent); in 1969-70, type I bacilli predominated (66.4-94.1 percent); Shigella type III was most frequently isolated from the healthy. The results of studies on colicin production showed that, of 922 cultures, 842 were inactive with respect to E. coli K-12 and E. coli B and φ; 76 cultures were colicin type K-12; 4, colicin type φ.

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USSR

MARITS, A. A., et al., Zdravookhraneniye, No 5, Sep/Oct 71, pp 7-9

Among the K-12 type cultures, 54 percent were fermentation type I; 44.8 percent were type II; and 1.2 percent were type III. The cultures isolated in 1969 exhibited a gradual decrease of strains sensitive to levomycetin, and a growing number of strains sensitive to neomycin and monomycin.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC 616.935:576.8

MARITS, A. A., CHASHCHINA, I. N., CHERVINSKAYA, S. I., EL'KIS, K. U., BELYAYEVA, N. S., CHEBAN Ye. D., KOTSEFAN, A. S., KORNES, R. B., DOBRUSHINA, S. V., GURCHIOGLUYANITS, L. V., and MIKHAYLOVA, A. A., Moldavian Scientific Research Institute of Hygiene and Epidemiology, and Kishinev Sanitary Epidemiological Station

"Enzymatic Types of Sonnei Dysentery Pathogens Circulating in Kishinev"

Kishinev, Zdravookhraneniye, No 3, May/June 1970, pp 48-49

Abstract: The number of Sh. Sonnei strains isolated in Kishinev in 1968 was more than four times greater than in 1959. Many healthy individuals are carriers of these bacteria. A total of 1,714 cultures of Shigella Sonnei were investigated to determine their morphological, peptolytic, antigenic, and other properties, including their ability to ferment sugars to acids. Pathogens were classified into three enzymatic types. Type I -- cultures ferment rhamnose within the first 24 hours of incubation at 37°C, but do not ferment xylose for a week; type II -- cultures ferment rhamnose with a delay (after three to four days), or do not ferment either rhamnose or xylose; type III -- cultures ferment both sugars within the first 24 hours. Of the 1,714 cultures investigated, 71.4% belonged to type II, 21.5% to type I, and 7.1% to type III. The tests are fairly easy and can be performed in routine clinical laboratories.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

CHASHECHKINA, I.V.

MEDICINE

USE OF PROPORTIONAL TYPOLOGICAL SCREENING IN STATISTICAL CLINICAL STUDIES

[Article by G.S. Zhukovskiy, I.V. Chashechkina, All-Union Scientific Research Institute of Social Hygiene and Public Health Organization [now N.A. Semashko Institute of Social Hygiene and Public Health Organization] and Second Institute of Hospital Pediatrics (headed by Professor V.A. Tabolin), Second and Chair of Hospital Pediatrics (headed by Professor V.A. Tabolin), Moscow Medical Institute imeni N.I. Pirogov; Moscow, Sovetskoye Zdravookhraneniye, Moscow Medical Institute imeni N.I. Pirogov; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 4, 1972, submitted 4 November 1971, pp 21-25]

One of the main tasks of any statistical study is to obtain intensive indices reflecting the relation of a given phenomenon to the total size of the population group studied that would be comparable to analogous indices in other studies.

Our objective was to determine the index of incidence of hemolytic disease among neonates due to Rh incompatibility and ABO incompatibility [blood types] in one of the country's major cities in 1967. According to the data of different authors, based on information from different institutions, in some cases for several years, the incidence of erythroblastosis neonatorum ranges from 0.1 to 9.9 percent due to Rh incompatibility, and from 0.5 to 7.1 percent due to ABO incompatibility (Thellman and Herrig; Peter; Rubinount et al.; Prahler et al.; V.A. Tabolin et al.; S.R. Kyrlate; R.G. Sokolova-Akulova Z.Ya. Igowen; M.Ya. Dingelin).

Some authors deal with the effect of mother's age and birth order on incidence of hemolytic disease. Thus, Ciuszeckt cites the data of Koller according to which the incidence of erythroblastosis of neonates increases as birth order grows higher, ranging from 0.05 percent in primipara to 1.1-1.2 percent for those giving birth for the 5th or more time. We tried to establish the effect of maternal age and birth order on incidence of birth of children with hemolytic disease.

We excerpted from primary medical documents of the city's maternity homes, the parturition and neonate development charts, referable to 1967, data concerning the course and outcome of pregnancy and parturition and condition of the newborn on specially developed cards. The sample method was used In order to obtain representative data we used proportional typological screening.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC: 539.3/.5

CHASNIKOV, A. Ya.

"On the Mechanical Properties of Deformed L80 and L95 Brass"

V sb. Materialy 2-y Nauchn. konferentsii molodykh uchenykh AN KazSSR (Materials of the Second Scientific Conference of Young Scientists, Academy of Sciences of the Kazakh SSR), Alma-Ata, 1970, pp 65-66 (from RZh-Fizika, no 9, Sep 70, Abstract No 9Ye626)

Translation: The author investigated the effect which the degree of preliminary deformation and heat treatment have on the ductility of brass. The brittle zone in weakly deformed brass is a superposition of three drops in ductility with minima at 200-250, 350-400, and 500-550°C. Superplasticity in the hot-deformed state was observed at 850°C, which corresponds to the drop in ductility of the cold-deformed alloy.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC 539.171.017

BOOS, E. G., VINITSKIY, A. Kh., TAKIBAYEV, Zh. S., TURSUNOV, R. A., CHASNIKOV, I. Ya., Institute of High-Energy Physics of the Academy of Sciences Kazakh SSR

"Comparison of the Characteristics of Pion-Nucleon and Proton-Nucleon Interactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36, No. 8, Aug 72, pp 1701-1704

Abstract: The various characteristics of inelastic proton-nucleon (pN) and pion-nucleon (πN) collisions were compared, since they are of great interest in explaining the characteristics of the mechanism of hadron interactions and in determining the possibility of distinguishing different types of events formed by cosmic ray particles. The work is based on experimental material obtained in studying collisions between 17-Gev pions and 20-Gev protons with nucleons of a nuclear emulsion. The CERN synchrotron was used in the study. A comparison of experimental material for these energies was convenient, since the center-of-inertia systems of hadron collisions in this case have approximately the same velocity. Data obtained

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USSR

BOOS, E. G., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36, No. 8, Aug 72, pp 1701-1704

from analyzing 288 πN-interactions found in nuclear emulsions irradiated by 60-Gev pions in the accelerator of the Institute of High-Energy Physics (Serpukhov) were also used in the study. A table is given showing the coefficient of asymmetry of the angular distribution of the charged pions as a function of the number of secondary charged particles. Despite the presence of asymmetry in individual groups of proton-nucleon collisions, the angular distribution of π-mesons from pN-interactions was practically the same averaged over all multiplicities. In pion-nucleon collisions there was found a strong asymmetry of the charged pions in the leading hemisphere of the center-of-inertia system that decreased with the growth of the number of secondary charged particles. This asymmetry is sometimes explained by the primary pions conserving their direction, but at an energy of 17 Gev the hypothesis of a "conserving pion" encounters certain difficulties, since the number of pions contributing to the asymmetry of the angular distribution of pions summed over all multiplicities is approximately equal to the number of interactions necessary

2/3

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

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USSR

BOOS, E. G., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36, No. 8, Aug 72, pp 1701-1704

to assume the absence of charge exchange of the primary pion. It is concluded that there is a difference in the characteristics of πN- and pN-interactions which does not disappear completely upon taking into account "conserving pions", since the divergence is more characteristic for a small number of secondary charged particles. At the same time, coincidence of the characteristics of these interactions is noted for collisions with large values of four-dimensional transfers.

3/3

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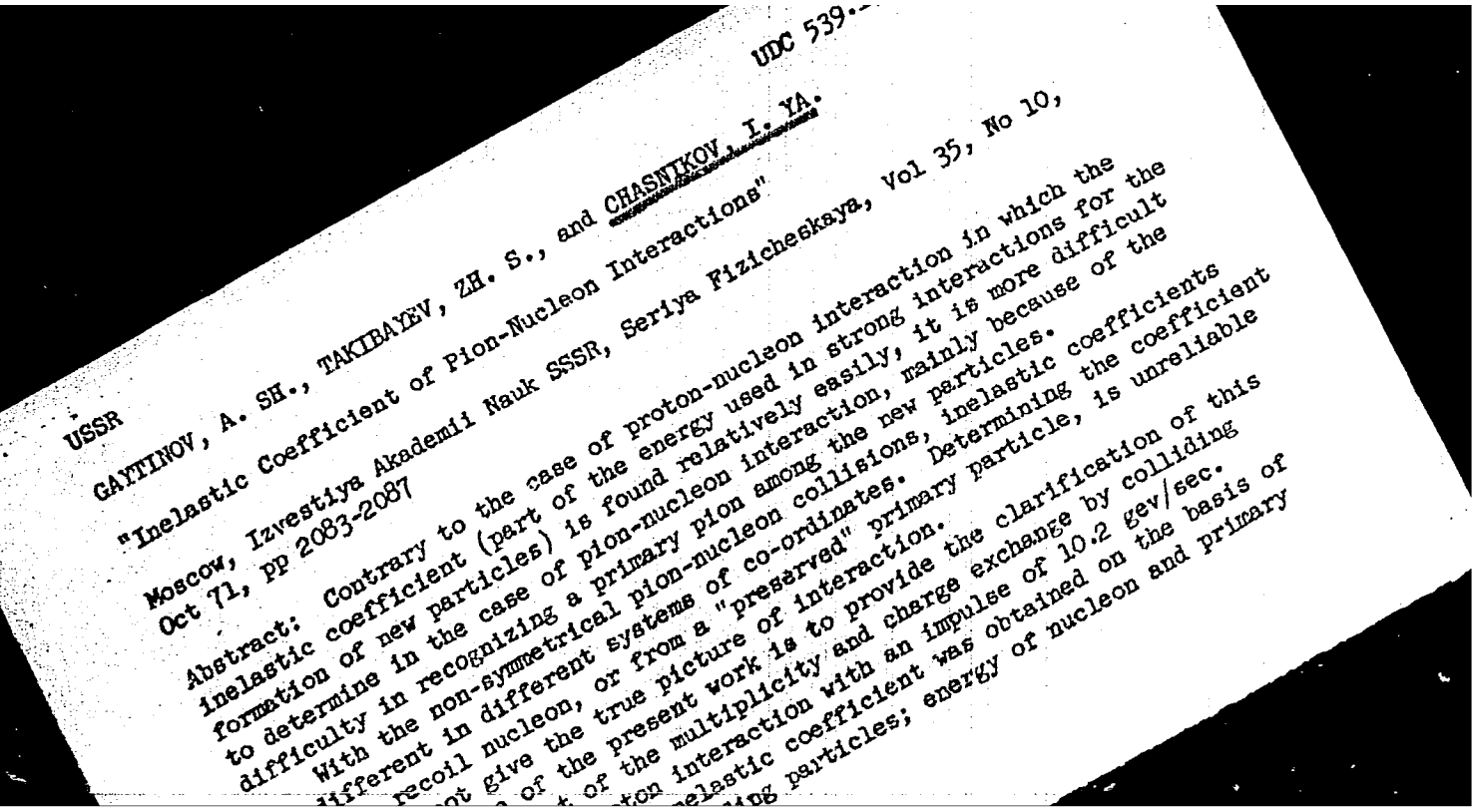

UDC 539.

USSR

GAYTINOV, A. SH., TAKIBAYEV, ZH. S., and CHASNIKOV, I. YA.

"Inelastic Coefficient of Pion-Nucleon Interactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2083-2087

Abstract: Contrary to the case of proton-nucleon interaction in which the inelastic coefficient (part of the energy used in strong interaction in which the formation of new particles) is found relatively easily, it is more difficult to determine in the case of pion-nucleon interaction, mainly because of the difficulty in recognizing a primary pion among the new particles. With the non-symmetrical pion-nucleon collisions, inelastic coefficients different in different systems of co-ordinates. Determining the coefficient recoil nucleon, or from a "preserved" primary particle, is unreliable not give the true picture of interaction. of the present work is to provide the clarification of this of the multiplicity and charge exchange by colliding ton interaction with an impulse of 10.2 gev/sec. elastic coefficient was obtained on the basis of ing particles; energy of nucleon and primary

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USSR

UDC 539.171.017

GAYTINOV, A. SH., TAKIBAYEV, ZH. S., and CHASNIKOV, I. YA.

"Inelastic Coefficient of Pion-Nucleon Interactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2083-2087

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With the non-symmetrical pion-nucleon collisions, inelastic coefficients are different in different systems of co-ordinates. Determining the coefficient from one recoil nucleon, or from a "preserved" primary particle, is unreliable -- it does not give the true picture of interaction.

The purpose of the present work is to provide the clarification of this problem in the light of the multiplicity and charge exchange by colliding particles in a pion-proton interaction with an impulse of 10.2 gev/sec.

Distribution of the inelastic coefficient was obtained on the basis of the total energy of the colliding particles; energy of nucleon and primary

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GAYTINOV, A. SH., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2083-2087

(leading) pion before and after interaction; energy, impulse, and angle of recoil of the nucleon; masses of both nucleon and pion. Particles with 30 percent or more of the energy of the primary pion were considered as "leading". Utilization of such particles for further computations produced reasonable results.

Particular cases examined were: number of generated particles was greater than three; "leading" pion took more than 50% of the energy of a primary particle; comparative distribution of inelastic coefficient with and without charge exchange of the target proton. Final data are presented for events with the observable "leading" pion, which events are further subdivided into three groups: 1) "leading" pion is charged; 2) "leading" pion is neutral; 3) all remaining events.

Fractional energy carried away by a single pion is presented graphically as a function of the number of new particles, from which it follows that this energy is independent of the nature of the colliding particles and decreases slightly with an increase in the number of new pions.

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UDC 539.12

USSR

VINITSKIY, A. KH., VOINOV, V. G., STREL'TSOV, I. S., TAKIBAYEV, ZH. S., Academician of the Academy of Sciences Kazakh SSR, and CHASNIKOV, I. YA., Institute of Nuclear Physics of the Academy of Sciences Kazakh SSR, Alma-Ata

"Characteristics of the Coherent Interaction of π^--Mesons with Emulsion Nuclei at 60 Gev"

Moscow, Doklady Akademii Nauk SSSR, Vol. 194, No. 3, 21 Sep 70, pp 544-546

Abstract: Coherent generation of particles in the interaction of high-energy pions with nuclei is discussed. The startup of the Serpukhov accelerator made it possible to study these processes up to energies of 60-70 Gev. This article discusses three- and five-ray events in a VR-2 photoemulsion found after examining tracks of primary pions over a distance of 870 m. It was found that the cross section for the coherent formation of the system $\pi^+\pi^-\pi^-$ in the final state increases with the energy of the primary particle, while the maximum in the effective mass distribution of this system remains in the same region as for an energy of 17 Gev. A considerable rise in the number of five-particle coherent

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USSR

MARITS, A. A., et al., Zdravookhraneniye, No 5, Sep/Oct 71, pp 7-9

Among the K-12 type cultures, 54 percent were fermentation type I; 44.8 percent were type II; and 1.2 percent were type III. The cultures isolated in 1968 exhibited a gradual decrease of strains sensitive to levomycetin, and a growing number of strains sensitive to neomycin and monomycin.

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CHASHECHKINA, I.V.

MEDICINE

USE OF PROPORTIONAL TYPOLOGICAL SCREENING IN STATISTICAL CLINICAL STUDIES

[Article by G.S. Zhukovskiy, I.V. Chashechkina, All-Union Scientific Research Institute of Social Hygiene and Public Health Organization [head N.A. Semashko] and chair of hospital pediatrics (headed by Professor V.A. Tabolin), Second Moscow Medical Institute imeni N.I. Pirogov; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 4, 1972, submitted 4 November 1971, pp 21-25]

One of the main tasks of any statistical study is to obtain intensive indices reflecting the relation of a given phenomenon to the total size of the population group studied that would be comparable to analogous indices in other studies.

Our objective was to determine the index of incidence of hemolytic disease among neonates due to Rh incompatibility and ABO incompatibility [blood types] in one of the country's major cities in 1967. According to the data of different authors, based on information from different institutions, in some cases for several years, the incidence of erythroblastosis neonatorum ranges from 0.1 to 9.9 percent due to Rh incompatibility, and from 0.5 to 7.1 percent due to ABO incompatibility (Hellman and Hertig; Potter; Robinaunt et al.; Preisler et al.; V.A. Tabolin et al.; S.K. Yyrkste; K.G. Sokolova-Maslova; Z.Ya. Igonctu; M.Yu. Dingelin).

Some authors deal with the effect of mother's age and birth order on incidence of hemolytic disease. Thus, Cluszecki cites the data of Koller according to which the incidence of erythroblastosis of neonates increases as birth order grows higher, ranging from 0.05 percent in primipara to 1.1-1.2 percent for those giving birth for the 5th or more time. We tried to establish the effect of maternal age and birth order on incidence of birth of children with hemolytic disease.

We excerpted from primary medical documents of the city's maternity homes, the parturition and neonate development charts, retrievable to 1967, data concerning the course and outcome of pregnancy and parturition and condition of the newborn on specially developed cards. The sample method was used. In order to obtain representative data we used proportional typological screening.

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USSR

UDC: 539.3/.5

CHASNIKOV, A. Ya.

"On the Mechanical Properties of Deformed L80 and L95 Brass"

V sb. Materialy 2-y Nauchn. konferentsii molodykh uchenykh AN KazSSR (Materials of the Second Scientific Conference of Young Scientists, Academy of Sciences of the Kazakh SSR), Alma-Ata, 1970, pp 65-66 (from RZh-Fizika, no 9, Sep 70, Abstract No 9Ye626)

Translation: The author investigated the effect which the degree of preliminary deformation and heat treatment have on the ductility of brass. The brittle zone in weakly deformed brass is a superposition of three drops in ductility with minima at 200-250, 350-400, and 500-550°C. Superplasticity in the hot-deformed state was observed at 850°C, which corresponds to the drop in ductility of the cold-deformed alloy.

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USSR

UDC 539.171.017

BOOS, E. G., VINITSKIY, A. Kh., TAKIBAYEV, Zh. S., TURSUNOV, R. A., CHASNIKOV, I. Ya., Institute of High-Energy Physics of the Academy of Sciences Kazakh SSR

"Comparison of the Characteristics of Pion-Nucleon and Proton-Nucleon Interactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36, No. 8, Aug 72, pp 1701-1704

Abstract: The various characteristics of inelastic proton-nucleon (pN) and pion-nucleon (πN) collisions were compared, since they are of great interest in explaining the characteristics of the mechanism of hadron interactions and in determining the possibility of distinguishing different types of events formed by cosmic ray particles. The work is based on experimental material obtained in studying collisions between 17-Gev pions and 20-Gev protons with nucleons of a nuclear emulsion. The CERN synchrotron was used in the study. A comparison of experimental material for these energies was convenient, since the center-of-inertia systems of hadron collisions in this case have approximately the same velocity. Data obtained

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BOOS, E. G., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36, No. 8, Aug 72, pp 1701-1704

from analyzing 288 πN-interactions found in nuclear emulsions irradiated by 60-Gev pions in the accelerator of the Institute of High-Energy Physics (Serpukhov) were also used in the study. A table is given showing the coefficient of asymmetry of the angular distribution of the charged pions as a function of the number of secondary charged particles. Despite the presence of asymmetry in individual groups of proton-nucleon collisions, the angular distribution of π-mesons from pN-interactions was practically the same averaged over all multiplicities. In pion-nucleon collisions there was found a strong asymmetry of the charged pions in the leading hemisphere of the center-of-inertia system that decreased with the growth of the number of secondary charged particles. This asymmetry is sometimes explained by the primary pions conserving their direction, but at an energy of 17 Gev the hypothesis of a "conserving pion" encounters certain difficulties, since the number of pions contributing to the asymmetry of the angular distribution of pions summed over all multiplicities is approximately equal to the number of interactions necessary

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BOOS, E. G., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36, No. 8, Aug 72, pp 1701-1704

to assume the absence of charge exchange of the primary pion. It is concluded that there is a difference in the characteristics of $\pi\pi^-$ and $p\pi^-$ interactions which does not disappear completely upon taking into account "conserving pions", since the divergence is more characteristic for a small number of secondary charged particles. At the same time, coincidence of the characteristics of these interactions is noted for collisions with large values of four-dimensional transfers.

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GAYTINOV, A. SH., TAKIBAYEV, ZH. S., and CHASNIKOV, I. YA.

"Inelastic Coefficient of Pion-Nucleon Interactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2083-2087

Abstract: Contrary to the case of proton-nucleon interaction in which the inelastic coefficient (part of the energy used in strong interactions for the formation of new particles) is found relatively easily, it is more difficult to determine in the case of pion-nucleon interaction, mainly because of the difficulty in recognizing a primary pion among the new particles.

With the non-symmetrical pion-nucleon collisions, inelastic coefficients are different in different systems of co-ordinates. Determining the coefficient from one recoil nucleon, or from a "preserved" primary particle, is unreliable -- it does not give the true picture of interaction.

The purpose of the present work is to provide the clarification of this problem in the light of the multiplicity and charge exchange by colliding particles in a pion-proton interaction with an impulse of 10.2 gev/sec.

Distribution of the inelastic coefficient was obtained on the basis of the total energy of the colliding particles; energy of nucleon and primary

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GAYTINOV, A. SH., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2083-2087

(leading) pion before and after interaction; energy, impulse, and angle of recoil of the nucleon; masses of both nucleon and pion. Particles with 30 percent or more of the energy of the primary pion were considered as "leading". Utilization of such particles for further computations produced reasonable results.

Particular cases examined were: number of generated particles was greater than three; "leading" pion took more than 50% of the energy of a primary particle; comparative distribution of inelastic coefficient with and without charge exchange of the target proton. Final data are presented for events with the observable "leading" pion, which events are further subdivided into three groups: 1) "leading" pion is charged; 2) "leading" pion is neutral; 3) all remaining events.

Fractional energy carried away by a single pion is presented graphically as a function of the number of new particles, from which it follows that this energy is independent of the nature of the colliding particles and decreases slightly with an increase in the number of new pions.

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UDC 539.12

VINITSKIY, A. KH., VOINOV, V. G., STREL'TSOV, I. S., TAKIBAYEV, ZH. S., Academician of the Academy of Sciences Kazakh SSR, and CHASNIKOV, I. YA., Institute of Nuclear Physics of the Academy of Sciences Kazakh SSR, Alma-Ata

"Characteristics of the Coherent Interaction of π^--Mesons with Emulsion Nuclei at 60 Gev"

Moscow, Doklady Akademii Nauk SSSR, Vol. 194, No. 3, 21 Sep 70, pp 544-546

Abstract: Coherent generation of particles in the interaction of high-energy pions with nuclei is discussed. The startup of the Serpukhov accelerator made it possible to study these processes up to energies of 60-70 Gev. This article discusses three- and five-ray events in a VR-2 photoemulsion found after examining tracks of primary pions over a distance of 870 m. It was found that the cross section for the coherent formation of the system $\pi^+\pi^-\pi^-$ in the final state increases with the energy of the primary particle, while the maximum in the effective mass distribution of this system remains in the same region as for an energy of 17 Gev. A considerable rise in the number of five-particle coherent

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VINITSKIY, A. KH., et al, Doklady Akademii nauk SSSR, Vol. 194, No. 3, 21 Sep 70, pp 544-546

interactions was also found. At 17 Gev the number of events of the reaction

$$\pi^- + A \to \pi^+ + 2\pi^- + 2\pi^0 + A'$$

was 2% of the reaction

$$\pi^- + A \to \pi^- + \pi^+ + \pi^- + A^-,$$

while at 60 Gev the number of five-particle coherent states was 70% as compared with the number of three-particle states. It is noted that this value may be somewhat high, since the reaction $\pi^- A \to \pi^- \pi^0 \pi^- A'$ was not taken into account.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

GAYTINOV, A. Sh., TAKIBAYEV, Zh. S., CHASNIKOV, I. Ya., Institute of Nuclear Physics, Academy of Sciences, Kazakh SSR

"The Part Played by Energy-Released Particles in Pion-Nucleon Interactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 9, 1970, pp 1885-1887

Abstract: The part played by energy-released particles and their influence upon the characteristics of secondary pions in inelastic π-p-interactions at an energy of 10.2 gigaelectron-volts is ascertained in this paper. Data on inelastic pp-interactions at the same energy are used for comparison. The number n_{max} of generated particles may be estimated as a function of the energy of the primary particle. As the number of generated particles increases, the average energy of the released particles decreases, and the transverse momentum at that time increases. This can be understood if it is assumed that the energy-released pions are "conserved" primary particles. 1 table, 3 figures, 10 bibliographic entries.

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1/2 006 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--GENERAL CHARACTERISTICS OF PI PRIME NEGATIVE NUCLEON INTERACTIONS AT 60 GEV-C OBTAINED IN NUCLEAR EMULSION -U-

AUTHOR-(03)-ANZON, E.V., CHASNIKOV, I.YA., SHAKHOVA, TS.I.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETT.; 31B: 237-40(16 FEB 1970)

DATE PUBLISHED--16FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PION, NUCLEON INTERACTION, NUCLEAR EMULSION, PARTICLE PRODUCTION, MESON INTERACTION

CONTROL MARKING--NO RESTRICTIONS

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PROXY REEL/FRAME--1982/0679 STEP NO--NE/0000/70/031/000/0237/0240

CIRC ACCESSION NO--AP0052138

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2/2 006 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0052138

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTERACTIONS OF 60 GEV-C PHI PRIME NEGATIVE MESONS WITH NUCLEONS OF THE NUCLEAR EMULSION WERE STUDIED. AVERAGE PRONG NUMBER IN PI PRIME NEGATIVE PROTON COLLISIONS IS 6.64 PLUS OR MINUS 0.16. THE MAJORITY OF SECONDARY PARTICLES ARE EMITTED INTO THE FORWARD HEMISPHERE IN THE PI PRIME NEGATIVE PROTON CM SYSTEM ESPECIALLY IN LOW MULTIPLICITY EVENTS. FACILITY: INST. OF NUCLEAR PHYSICS, ALMA-ATA, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

AC ACCESSION NO--AA0113022

STRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPDS. ARE PREPD. BY TREATING S CONTG. GLYCOLS. WITH ALKYL METHACRYLATES IN THE PRESENCE OF POLYMN. INHIBITORS AND ALKALI OR ALK. EARTH METAL ALCOHOLATES. -U-

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

GAYTINOV, A. SH., TAKIBAYEV, ZH. S., and CHASNIKOV, I. YA., Institute of High-Energy Physics, Academy of Sciences Kazakh SSR

"The Nature of Energy-Separated Particles in Inelastic Interactions"

Moscow, Yadernaya Fizika, Vol 13, No 1, 1971, pp 124-129

Abstract: Previous articles by the authors stated that in pion-nucleon interactions at energies of 7.5, 10, and 17 Gev and proton-nucleon interactions at an energy of 9 Gev particles with $E \geq 0.3 E_0$ (E_0 and E being the primary- and secondary-particle energies) should be considered energy-separated particles (e.s.p.). This definition is supported by experimental facts obtained from an analysis of 4-track $\pi^- p$ interactions in a hydrogen bubble chamber at 10 Gev and 4-track pp interactions in a nuclear photoemulsion at 9 Gev. It is shown that in $\pi^- p$ interactions among the secondary particles there stands out a group of pions ($E \geq 0.3 E_0$) whose energy and angle characteristics differ from those

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GAYTINOV, A. SH., et al., Yadernaya Fizika, Vol 13, No 1, 1971, pp 124-129

of the remaining particles in these same interactions and at the same time coincide with the characteristics of fast protons ($E \geq 0.3\ E_0$) from pp interactions. The mean energies and transverse momenta of e.s.p. differ for different reaction channels. In most cases energy-separated pions are produced as a result of ρ^0 resonance decay. Pions with different charge signs occur among e.s. pions. The number of π^- mesons is considerably greater than π^+ or π^0 mesons and decrease with an increased number of final-state particles. In the reaction $\pi^- p \to \pi^- p \pi^- \pi^+ \pi^0$, where e.s. pions of all signs are represented, the number of π^+ and π^0 mesons was found to be the same within error limits. In the reactions $\pi^- p \to \pi^- n \pi^- \pi^+ \pi^+$ and $\pi^- p \to \pi^- n \pi^- \pi^+ \pi^+ (m\pi^0)$, $m \geq 1$, in which proton charge exchange takes place, the number of π^+ mesons is greatest.

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GAYTINOV, A. SH., Yadernaya Fizika, Vol 13, No 1, 1971, pp 124-129

The authors thank P. A. USIK, E. G. BOOS, A. KH. VINITSKIY, YU. T. LUKIN, A. A. LOKTIONOV, I. S. STREL'TSOV for their discussion and comments.

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CHASOVITIN, Yu. K.

UDC 551.510.535.4

WIND IN THE IONOSPHERE AND THE FORMATION OF THE SPORADIC E LAYER

[Article by Candidate of Physical and Mathematical Sciences L. A. Andreyeva, Doctor of Physical and Mathematical Sciences L. A. Katasev, V. P. Nesterov, Candidates of Physical and Mathematical Sciences D. B. Uvarov and Yu. K. Chasovitin, Institute of Experimental Meteorology; Moscow, Meteorologiya i Gidrologiya, Russian, No 2, 1972, submitted 17 December 1970, pp 3-7]

Three profiles of the wind velocity and direction in the lower thermosphere obtained by observation data on artificial noctilucent clouds on 16, 25 and 26 July 1966 at the Volgograd station are presented in this article. Some results of experimental checking of the theory of formation of the middle latitude E_s ionospheric layer under the effect of wind shear are discussed.

An MR-12 rocket with containers filled with a special mixture containing sodium was launched in the summer of 1966 in Volgograd to study the wind in the lower thermosphere. The experiments were performed on 16, 25 and 26 July at 2040 hours, 2030 hours and 0300 hours Moscow time, respectively.

The elongated noctilucent clouds formed were photographed synchronously from two points. The successive positions of the cloud photographed on 16 July are shown in the photograph in Figure 1. The procedure for processing these photographs is described in reference [3].

By the data obtained only the horizontal components of the wind velocity were determined. Obviously, the vertical components are small, and they could not be reliably established.

In Figure 2a we have the profiles of the horizontal wind velocity obtained in the experiments. The profiles on 16 and 25 July, have much in common with the characteristics of the wind conditions of the upper atmosphere obtained by Rosenberg [6] and Blamont [7] by the data from numerous observations from artificial noctilucent clouds. The profile for 26 July has some differences.

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PENICILLIN SENSITIVITY OF GONOCOCCI AND ITS ROLE IN CLINICS AND THERAPY OF WOMAN GONORRHEA -U-

AUTHOR-(03)-CHASTIKOVA, A.V., STAROSTINA, Z.D., KUNTSEVICH, L.D.

COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 6, PP 561-564

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VENEREAL DISEASE, GYNECOLOGY, PENICILLIN, DRUG SENSITIVITY, ANTIBIOTIC, DRUG RESISTANCE, STREPTOMYCIN, TETRACYCLINE, LEVOMYCETIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0999 STEP NO--UR/0297/70/015/006/0561/0564

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CIRC ACCESSION NO--AP0126641

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SENSITIVITY OF GONOCOCCI TO PENICILLIN WAS STUDIED ON 252 FEMALE CASES WITH VARIOUS FORMS OF GONORRHEA. GONOCOCCAL SUSCEPTIBILITY TO PENICILLIN WAS ESTIMATED WITH THE METHOD OF SERIAL DILUTIONS AND THAT TO PENICILLIN, LEVOMYCETIN, STREPTOMYCIN, CHLORTETRACYCLINE AND OXYTETRACYCLINE BY THE METHOD OF PAPER DISCS. IN 1966 TO 1969 STRAINS WITH DECREASED SENSITIVITY TO PENICILLIN (AT LEAST 0.1 UNITS) WERE ISOLATED FROM 14.7 PERCENT OF FEMALE CASES SUFFERING FROM GONORRHEA. NO CORRELATION BETWEEN THE SENSITIVITY LEVELS OF GONOCOCCI TO PENICILLIN, THE STAGE OF THE DISEASE AND ITS PROGRESSION WAS FOUND, HOWEVER, STRAINS WITH DECREASED SENSITIVITY WERE ISOLATED FROM CASES WITH ASCENDING PROCESSES TWICE AS FREQUENTER, THAN FROM CASES WITH GONORRHEA OF THE LOWER PART OF THE UROGENITAL ORGANS. IT WAS SHOWN THAT DEVELOPMENT OF RESISTANCE TO PENICILLIN IN GONOCOCCI WAS LARGELY DUE TO PREVIOUS TREATMENT OF THE DISEASE WITH INSUFFICIENT DOSES OF THE DRUG. THE RESULTS OF THE TREATMENT DEPENDED ON THE HOST REACTIVITY AND THE SENSITIVITY LEVELS OF GONOCOCCI TO THE ANTIBIOTICS. COMPARISON OF THE DATA OF THE GONOCOCCAL SENSITIVITY TO PENICILLIN OBTAINED WITH THE TWO METHODS, THAT IS SERIAL DILUTIONS AND PAPER DISCS SHOWED FREQUENT DEVIATIONS. THE METHOD OF SERIAL DILUTIONS IS SUPPOSED TO BE MOST EXPEDIENT FOR DETERMINATION OF GONOCOCCAL SENSITIVITY TO PENICILLIN. FACILITY: GORKY INSTITUTE FOR SKIN AND VENERIAL INFECTIONS, MZ RSFSR.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

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USSR

UDC 621.793.6

KAYDASH, N. G., CHASTOKOLENKO, P. P., TKACHENKO, P. A., TATARCHUK, V. S., LUCHKO, M. V., LUTSENKO, L. I., Uman Pedagogical Institute

"Diffusion Titanation of Type 45 Steel"

Moscow, Zashchita Metallov, No 4, 1972, pp 508-509

Abstract: One promising method for increasing the heat resistance of steels is diffusion saturation of their surface with metals, particularly titanium. The authors studied the structure, composition, and certain properties of diffusion layers formed on type 45 steel upon saturation of the surface with titanium. This process forms dense coatings, firmly bonded to the base metal. Metallographic analysis has shown that the titanium coatings have a columnar structure. Their microhardness on the surface of the specimen is 330 kg/mm^2, decreasing linearly to 200 kg/mm^2 at 340 μ from the surface due to decreasing titanium concentration. The titanium coatings on type 45 steel consist of a phase with a body-centered cubic lattice with parameters a=2.8991 A on the surface of the specimen. The a=2.8768 A line of iron was also discovered in the same zone. At 900°C and less, the titanium-treated steel had heat resistance equal to type 1Kh18N9T chrome-nickel steel, but was oxidized more strongly at 980°C.

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USSR
CHASTOV, A. A.

UDC 621.384

"Formation of a Channel with Small Losses During Propagation of Powerful Light in Colloidal Systems"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol XV, No 6, 1971, pp 997-1000

Abstract: An experimental study was made of the passage of ruby laser radiation through colloidal solutions of pigments with particle sizes appreciably less than the wavelength of light. As was demonstrated earlier, the primary losses here arise from nonlinear scattering by the inhomogeneities formed as a result of heating of the liquid around the absorbing particles. After passage of the radiation pulse a channel is formed in the medium, through which subsequent radiation pulses pass with much lower losses than the first. The channel formation is connected with breaking up of the colloidal particles as a result of heating and a corresponding decrease in nonlinear scattering. The time the channel remains is evaluated.

Fringe photographs of a cell with $(PcAlCl)_n$ in dichlorobenzene at the time of passage through it of the first, third, and sixth radiation pulses are presented for pulses passing every 30 seconds. The maximum intensity of nonlinear scattering for the pulse train gradually shifts in the direction of propagation of the light beam.
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC: 621.373:530.145.6

LEBEDEV, O. L., GRYAZNOV, Yu. M., CHASTOV, A. A.

"A Liquid Shutter"

USSR Author's Certificate No 237293, filed 13 May 67, published 12 May 70 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2D272 P)

Translation: This Author's Certificate introduces a liquid shutter for modulating laser emission. To improve photochemical and thermal stability, the shutter utilizes a bromidized phthalocyanine such as copper phthalocyanine dissolved in aluminum bromide in the presence of an acid halide such as acetyl chloride.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

1/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--USE OF NONLINEAR ABSORPTION TO CORRECT THE RADIATION WAVEFRONT OF SOLID STATE LASERS -U-

AUTHOR-(05)-SOSKIN, M.S., POGORETSKIY, P.P., GRYAZNOV, YU.M., LEBEDEV, O.L., CHASTOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12, APR. 1970, P. 740-742

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RUBY LASER, LASER RADIATION FILTER, NONLINEAR EFFECT, LASER BEAM DIVERGENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1317 STEP NO--UR/0368/70/012/000/0740/0742

CIRC ACCESSION NO--AP0124968 UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

2/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124968

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE USE OF A LOCAL NEGATIVE FEEDBACK TO IMPROVE THE SPATIAL AND TEMPORAL CHARACTERISTICS OF SOLID STATE LASERS WITH OPTICALLY IMPERFECT ACTIVE MEDIA. THE POSSIBILITY OF IMPROVING THE CHARACTERISTICS OF A RUBY LASER WITH A BLEACHABLE DYE FILTER IS SHOWN EXPERIMENTALLY. A PRACTICALLY CONTINUOUS REGIME WITH A SIMULTANEOUS DECREASE IN BEAM DIVERGENCE FROM 50 TO 10 MIN TO 2 TO 3 MIN IS OBTAINED.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC: 621.375.8

GRYAZNOV, Yu.M., LEBEDEV, O.L., CHASTOV, A.A.

"A Laser"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyya Znaki, No 4, 1970, p 194, patent No 232409, filed 18 Aug 65

Abstract: This Author's Certificate introduces a laser which contains a passive shutter, a working medium and a resonator reflector. As a distinguishing feature of the patent, monopulse energy is increased by placing a telescopic system between the working medium and the passive shutter to broaden the beam of light incident on the shutter.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

Acc. Nr: AP0043762 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 848-853

NONLINEAR SCATTERING OF INTENSE LIGHT BY COLLOID SUSPENSIONS

A. A. Chastov, O. L. Lebedyev

Traversal of intense light through colloid solutions containing particles with dimensions smaller than the light wavelength is considered. It is demonstrated experimentally that nonlinear scattering by bubbles formed around the absorbing particles is the main cause of attneuation of light in such solutions.

REEL/FRAME
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

1/2 041 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--LIQUID SHUTTER -U-

AUTHOR-(03)-LEBEDEV, O.L., GRYAZNOV, YU.M., CHASTOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 237,293

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--06JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER RADIATION, PHOTOCHEMISTRY, THERMAL STABILITY, PATENT, PHYSICS LABORATORY INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0091 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0127718

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 041

CIRC ACCESSION NO--AA0127718

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO INCREASE THE PHOTOCHEM. AND THERMAL STABILITY OF A LIQ. SHUTTER FOR MODULATING LASER RADIATION, BROMINATED CU PHTHALOCYANINE DISSOLVED IN ALBR SUB3 AND IN AN ACID HALIDE, SUCH AS ACETYL CHLORIDE, WAS USED IN THE SEAL.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR UDC: 621.372.837(088.8)

CHASTUKHIN, P. A.

"A Coaxial Microwave Switch"

USSR Author's Certificate No 248799, filed 19 Apr 68, published 26 Jun 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B208 P)

Translation: The proposed switch contains an L-shaped commutating element connected to a rotating pin, and a movable shield. To improve decoupling between the elements being switched, the shield is made in the form of a conical plug. One illustration.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC 006.22:632.7

CHASTUKHIN, V. Ya., Chairman, Commission of the Botanical Society of the USSR on the Control of Biological Degradation of Materials

"Commission of the Botanical Scoeity of the USSR on the Control of Biological Degradation of Materials"

Leningrad, Botanicheskiy Zhurnal, Vol 55, No 11, Nov 70, pp 1720-1721

Translation: The Commission was organized in 1968. Its first organizational meeting was held in February. V. Ya. Chastukhin, Chairman of the Commission, reported on the work of Leningrad specialists in theoretical problems of damage to materials. The basic directions for the studies were planned as follows: 1) a study of fungal complexes causing decomposition of complex organic substances under natural conditions; 2) resistance to fungi of various industrial materials (cellulose, textiles, wood, silicate glass, synthetic polymers, and others); 3) the specific and quantitative composition of fungi destroying materials under operational conditions and in storage; 4) the ecology, physiology, and biochemistry of cellulose-destroying fungi; 5) preventives and their effect on materials; 6) methods of determining the resistance to fungi of materials and their products.

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USSR

CHASTUKHIN, V. Ya., Botanicheskiy Zhurnal, Vol 55, No 11, Nov 70, pp 1720-1721

Participants in the work included scientific associates and graduate students at the State Public Library imeni M. Ye. Saltykov-Shchedrin (GPB), the Library of the Academy of Sciences USSR (BAN), the Scientific Research Institute for Standardization and Testing of Electronic Engineering, the Scientific Research Institute of Radio Broadcasting Reception and Acoustics imeni A. S. Popov, the State Institute of Optics imeni S. I. Vavilov (GOI), the Botanical Institute imeni V. L. Komarov of the Academy of Sciences USSR (BIN), the Scientific Research Institute of the Textile Industry, Leningrad State University imeni A. A. Zhdanov (LGU) and Leningrad Forestry Engineering Academy imeni S. M. Kirov (LTA).

A number of reports were discussed at the Committee meetings which may be combined in the following sections:

1. General Ecological, Systematic, and Physiological Studies

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

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CHASTUKHIN, V. Ya., Botanicheskiy Zhurnal, Vol 55, No 11, Nov 70, pp 1720-1721

This incorporates reports devoted to the study of processes of biological degradation of organic substances under natural conditions.

V. A. Solov'yev (LTA) - "Destruction of Wood by Fungi." Observations are being conducted of the mycoflora of wood-destroying fungi in the forests of Leningradskaya Oblast. Special attention is being devoted to some physiological questions, in particular the gaseous regime in the trunks of trees affected by tinder fungus (the article was published in the journal Mikologiya i Fitopatologiya [Mycology and Phytopathology], 1968, Vol 3, p 231).

T. V. Pavlova (LGU) - "Study of Fungi Destroying Grass Remnants" (the report was presented at a joint meeting with the Standing Committee; the article was published in the magazine Mikologiya i Fitopatologiya, 1969, Vol 3, p 502). The systematic composition of Fungi Imperfecti, higher ascomycetes, and basidiomycetes, which cause the decomposition of grass remnants in meadows was studied. The active role of pileate hymenomycetes in these processes was revealed.

3/8

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CHASTUKHIN, V. Ya., Botanicheskiy Zhurnal, Vol 55, No 11, Nov 70, pp 1720-1721

G. I. Zarudnaya (LGU and LTA) - "Studies of Destruction of Wood by Fungi of the Genus Coprinus in Connection With Their Ecological Characteristics." The metabolism of representatives of the Genus Coprinus belonging to different ecological groups is described in detail. The assimilation of carbon-containing compounds, various substances that are nitrogen sources, relationship to pH, etc., were studied.

The studies of mycroflora developing in natural phytocoenoses are of considerable interest for the development of protective measures against degradation of materials, inasmuch as individual species of fungi as well as entire microbial complexes existing in natural conditions may be the principal sources of mycoflora forming growths in different substrates. Knowledge of the main sources of insemination is needed for further meaningful studies in this direction. A monograph by V. Ya. Chastukhin and M. A. Nikolayevskaya entitled "The Biological Degradation and Resynthesis of Organic Substances in Nature" was published in 1969, with the cooperation of the Botanical Institute of the Academy of Sciences USSR. The monograph, a summary of

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CHASTUKHIN, V. Ya., Botanicheskiy Zhurnal, Vol 55, No 11, Nov 70, pp 1720-1721

studies conducted by the authors over many years in different natural phytocoenoses, describes methods of complex ecological systematic and physiological studies of decomposition processes.

2. Investigation of Fungi Causing the Destruction of Industrial Materials (Cellulose, Textiles, Plastics, etc.)

Yu. P. Nyuksha (GPB) - "Pigmentation of Cellulose Materials Under Various Conditions." The author examines conditions which promote formation and the interrelationship between the destruction of cellular tissue and pigment formation by fungi in cultures.

I. G. Kaneyskaya (BAN) - "The Ecology and Physiology of Cellulose-Destroying Fungi." This is a report on the means of investigating the cellulose-destroying enzymes of fungi by the viscometric method and by determining the content of reducing sugars in the culture fluid.
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CHASTUKHIN, V. Ya., Botanicheskiy Zhurnal, Vol 55, No 11, Nov 70, pp 1720-1721

Z. P. Zagulyayeva (BAN) - "On the Question of the Physiology of Cellulose-Destroying Micromycetes." It is established that micromycetes isolated from paper can grow on cellulose with an initial pH of 4.1 to 11.5. Among the fungi investigated, two groups can be isolated: those with an optimum in the alkaline zone, and those growing almost identically in an acid and an alkaline zone. In buffered media a number of micromycetes lose their ability to grow during an alkaline reaction.

3. Toxicological Studies

R. N. Golubchina (Institute of Radio Engineering) - "Fungicidal Protection of Radio Equipment." It is established that antisepticizing diffusers with hydroxyquinoline or salicylanilide are the most reliable method of protecting the diffusers from overgrowth by mold fungi.

M. S. Rodionova (GOI) - "Protection of Optical Instruments From Biological Overgrowth." Methods of testing materials for resistance to fungi are

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CHASTUKHIN, V. Ya., Botanicheskiy Zhurnal, Vol 55, No 11, Nov 70, pp 1720-1721

explained, in particular the method of testing optical glass and the results are presented of investigation of overgrowth of Soviet-produced optical glass. The work contains a detailed examination of methods of sterilizing equipment (heating with ultraviolet rays, high-frequency radiowaves, application of radioactive foil, and fungicides). A method of continuous processing of the glass with a solution of vinyltrichlorsilance and toluene and a solution of mercuric acetate in methanol is suggested for prevention of overgrowth of optical parts. The author recommends 4-caproyl-resorcin for protection of lubricants from overgrowth.

A. Bangozhin and L. V. Sergeyeva (GOI) - "The Development and Investigation of Chemical Methods of Protecting Optical Parts and Lubricants Against Microbiological Fouling." The paper cites the literature on the protection of optical parts and instrument lubricants. Fungicidal compounds used for that purpose were tested and synthesized. The principle of producing stable fungicidal films bonded to the surfaces has been developed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

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CHASTUKHIN, V. Ya., Botanicheskiy Zhurnal, Vol 55, No 11, Nov 70, pp 1720-1721

Members of the Commission also take part in conferences conducted by the Scientific Council on Theoretical Problems of Biological Degradation of Materials, Presidium of the Academy of Sciences USSR. At the second session of this council, the following reports were presented: V. Ya. Chastukhin and M. A. Litvinov, "Mycological Work in Leningrad"; G. I. Ruban, "Testing Fungus Resistance by the Method of the MEK [International Electrotechnical Commission]; and Yu. P. Nyuksha, "Problems of the Biological Stability of Books and Documents."

Members of the Commission contribute to an information bulletin entitled "Theoretical Problems of Biological Damage and Overgrowth of Raw Materials, Materials, Products, and Structures."

In 1970-1971 it is proposed that a collection on the "Biological Destruction of Materials," describing the most important problems discussed at meetings of the Commission be published.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR UDC 621.317.382/.384+621.375.826

PLOTNIKOV, V. A., and CHASTUKHINA, L. N.

"A Device for Measuring the Power of a Helium-Neon Laser"

Moscow, Pribory i Tekhnika Eksperimenta, No 4, Jul/Aug 71, pp 189-190

Abstract: The paper describes a simple power meter for continuous emission in the band from 10 nW to 1 μW for a helium-neon laser wavelength of 0.63 μ. The device is based on an FD-7K silicon photodiode. Measurement accuracy is at least 10 percent. The device has a constant sensitivity of 1.03±0.06 V/μW in the range from 10 nW to 2 μW of output power. The threshold of sensitivity attributable to noises of the photodiode and amplifier is 1 nW on the working wavelength for a signal-to-noise ratio of 1 at the output of the amplifier. Extraneous exposure of the photodiode is prevented by using an interference filter with a passband of 5 nm in the middle of the maximum as well as a diaphragm with an iris which can be adjusted from 0.2 to 6 mm.

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Analysis and Testing

USSR UDC: 669.017.11

CHAT[illegible]ZHI, A. K., MALYSHEVA, T. Ya., and ZHMOYDIN, G. I.,Moscow

"Phase Composition of Slags of the Calcium Oxide-Aluminum Oxide-Calcium Fluoride System"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, Nov-Dec 70, pp 58-64

Abstract: The information available on the phase composition of $CaO-Al_2O_3-CaF_2$ slags is inadequate, fragmentary, and contradictory. Optical and x-ray diffraction analyses of heat-treated representative samples indicate that the $CaO-Al_2O_3-CaF_2$ ternary system is nonequilibrium in open air and that interaction occur. On the basis of this examination it also became possible to explain certain features of the fusibility isotherms of the ternary system. In a ternary system the primary crystallization fields all have binary calcium aluminates. With the formation of the ternary compound $3CaO \cdot 3Al_2O_3 \cdot CaF_2$ the fluoride derivative of the unstable phase $C_{12}A_7$ becomes most stable while the stable monoaluminate CA is limited to a narrow range of compositions up to 14% CaF_2. The irregular occurrence of the ternary compound $C_3A_2CaF_2$ in

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

CHATTERJZHI, A. K., et al, Izvestiya Akademii Nauk SSSR, Metally, No 6, Nov-Dec 70, pp 58-64

its crystallization fields and the systematic penetration of CA_2 in them confirms the instability of the ternary compound in an open system. The occurrence of CaO in the triangle C_3A-$C_{11}A_7$.CaF signifies the possibility of decomposition of compound C_3A to form a fluoride phase in free lime.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

UDC 621.3.036.539.375-6

GERMAN, A. N., CHATYNYAN, L. A., SAMOYLOV, A. I., POKROVSKAYA, N. G., and YEGAN, O. M., All-Union Institute of Aviation Materials

"Investigation of the Surface Layers of 30KhGSNA Steel After Electric-Arc Alloying With Br. MTs-f Bronze and Molybdenum"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 6, 1973, pp 13-16

Abstract: A study was made of the physical and chemical processes that take place in the electric-arc alloying of 30KhGSNA steel to determine if electric--arc alloying can be used to increase the wear resistance, emission capability, electrical conductivity, and other properties of metals. The steel was investigated after oil quenching and tempering for two hours at 200° C and electric-arc alloyed with Br. MTs-f bronze and Mo in a helium atmosphere using an EFI-ELEKTROM device. Metallographic studies showed that a mechanical mixture of base-metal and coating material particles is formed by this process. Microhardness achieved a maximum value in the layers where there were no bronze inclusions for the bronze-alloyed steel, and in layers where there was some molybdenum in the Mo-alloyed steel. It was noted that the concentration of coating-materials elements and base-metal vary along the depth of the alloyed
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

GERMAN, A. N., et al., Fiziko- Khimicheskaya Mekhanika Materialov, Vol 9, No 6, 1973, pp 13-16

layer and were qualitatively identical. Consequently, the mechanism of electric-arc coating formation was analogous for both alloy materials. Friction tests in industrial oil showed that the wear resistance of samples after electric-arc alloying is significantly increased. Five figures, one table, six bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

1/2 005 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--INDIUM SESQUISULFIDE,NICKEL MONOSULFIDE SYSTEM -U-

AUTHOR-(03)-DEGTYARENKO, N.M., CHAUS, I.S., SHEKA, I.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 1127-30

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDIUM SULFIDE, NICKEL SULFIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1121 STEP NO--UR/0078/70/015/004/1127/1130

CIRC ACCESSION NO--AP0123113
UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

2/2 005 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0123113
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT 50-100 MOLE PERCENT IS SUB2 S SUB3, THE IN SUB2 S SUB3-NIS SYSTEM FORMS SOLID SOLNS. AT NIS:IN SUB2 S SUB3 RATIOS OF 1 AND 3, THE BINARY SULFIDE NIIN SUB2 S SUB4, M. 1040PERCENT, AND 3 NIS. IN SUB2 S SUB3, M. 1070DEGREES, ARE FORMED.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

1/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INCREASE IN THE PHOTOELECTRIC SENSITIVITY OF POLYMERS WITH A CONJUGATION SYSTEM. I. PHOTOSENSITIVITY OF A POLYMERLOW MOLECULAR

AUTHOR-(05)-DRABKIN, I.A., TSARYUK, V.I., CHERKASHIN, M.I., CHAUSER, M.G., KISILITSA, P.P.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(1), 65-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CONJUGATED POLYMER, MOLECULAR WEIGHT, PLASTIC FILM, PHOTOSENSITIVITY, BENZENE DERIVATIVE, ACETYLENE, IODINATED ORGANIC COMPOUND, CHLORINATED ORGANIC COMPOUND, ORGANIC AZINE COMPOUND, PROTON

CONTROL MARKING--NO RESTRICTIONS

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2/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF LOW MOL. WT. PHOTON ACCEPTORS (BROMANIL, CHLORANIL, TETRACYANOQUINODIMETHAN, TETRACYANOETHYLENE, TETRACYANOBENZENE, ALCL SUB3, OR PHTHALIC ANHYORIDE) TO CONJUGATED POLYMERS (POLY(PHENYLACETYLENE), POLY(BETA IODOPHENYLACETYLENE), POLY(DIPHENYLBUTADIYNE), POLY(1 CHLOROCYCLOPENTENE), OR POLYAZINE) INCREASED THE PHOTO COND. (SIGMA) OF THE POLYMERS LESSTHANOREQUALTO10PRIME8 TIMES. THERE IS AN INCREASE OF SIGMA WITH THE POLYMER FILM THICKNESS, BUT NOT WITH INCREASED LAYER THICKNESS OF THE ACCEPTOR. THE MOST IMPORTANT FACTOR IN CHANGING SIGMA IS THE TYPE OF THE ACCEPTOR POLYMER INTERFACE. THE ADDN. OF THE ACCEPTORS ALSO INCREASES THE DARK COND. OF THE POLYMERS SLIGHTLY.

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UDC 541.69+542.91+547.631.4

(12)

GAMBURYAN, A. A., BABIYAN, N. A., MOROZOVA, N. M., AKOPYAN, N. YE., CHAUSHYAN, K. M., and MNDZHOYAN, L. O., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"Studies in the Field of Aminoethers. V. Dialkylaminoalkyl Ethers of Benzhydrol and o-, m-, and p-Benzydrols - their Synthesis and Neuropharmacological Activity"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 10, 1971, pp 900-908

Abstract: By the rearrangement of quaternary salts formed by aminoalcohols with benzhydryl chlorides, the aminoethers RC_6H_4-CH(Ph)-OC_nH_{2n}.NR'_2 were prepared, where R = H or o-, m-, p-Me; R' = Me, Et; C_nH_{2n} = $(CH_2)_2$, $(CH_2)_3$, $(CH_2)_4$, CH(Me)CH_2CH_2, CH(Me)CH(Me), $CH_2C(Me)_2CH_2$. Physiological tests carried out with the aminoethers upon their conversion to hydrochlorides showed that transition from beta-dialkylaminoethyl ethers to propyl ethers increased the antispasmodic activity. This activity again decreased on transition to dialkylaminobutyl ethers. Some of the compounds that has been prepared exhibited an antihistaminic activity in tests on the isolated intestine of guinea pigs. 1/2

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GAMBURYAN, A. A., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 10, 1971, pp 900-908

The compounds synthesized together with their physical properties and the melting points of hydrochlorides or iodomethylates are listed in tables.

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USSR

UDC 669.71.053.2(088.8)

GROSHEV, G. L., DANOV, S. M., YURLOVA, Z. I., SHILOVA, A. V., CHAUSOVSKIY, D. A., MOVSHEVICH, Yu. M., and SHAROV, A. V.

"Method of Producing Anhydrous Aluminum Chloride"

USSR Author's Certificate No 268397, Filed 8/04/68, Published 13/07/70 (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G132 P)

Translation: A method is presented for producing anhydrous $AlCl_3$ from Na tetrachloroaluminate at elevated temperatures. To simplify the process, the Na tetrachloroaluminate is treated with gaseous NH_3, the ammoniates formed are evaporated and condensed, and metallic Al is added to them with subsequent heating to 800-850° in a medium of an inert gas such as N_2.

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USSR

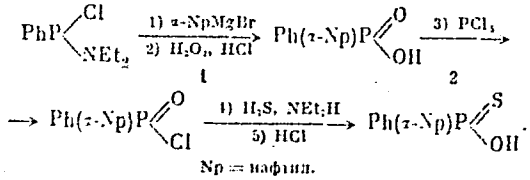
UDC 541.653+547.241

CHAUZOV, V. A., and LUTSENKO, I. F.

"Synthesis and Separation of Phenyl-α-naphthylthiophosphonic Acid into Enantiomers"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 69-71

Abstract: One of the most general methods of splitting phosphorus-containing thioacids into enantiomers is the method of fractional crystallization of their salts with optically active amines from the appropriate solvents proposed by Aaron [H. S. Aaron, et al., J. Am. Chem. Soc., No 82, 596, 1960]. In the present paper an analogous method is used to split phenyl- α -naphthylthiophosphonic acid. Racemic phenyl- α -naphthylphosphonic acid was obtained by the following scheme:



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CHAUZOV, V. A., and LUTSENKO, I. F., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 69-71

The fractional crystallization of the salts of phenyl- α -naphthyl-thiophosphonic acid with quinine is highly efficient means of splitting this acid into enantiomers. Procedures are presented for obtaining the acids and separating mixtures of the diastereomeric salts.

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CHAVCHANIDZE, Corresponding Member of the Georgian Academy of Sciences V. V.
(Georgian Academy of Sciences, Institute of Cybernetics

"Towards the Beginnings of a Theory of Conceptual Decision-Making in a System of Artifical Intelligence"

Tbilizi, Bulletin of the Academy of Sciences of the Georgian SSR, May 73, pp 301-304

Abstract: A special class of decision-making conceptual decisions based on the theory of artificial conceptual intelligence is considered. If it is feasible to "compute the concepts" on the basis of experimental data, it will prove possible to simulate the decision "output." The concept of the difunctional as a mathematical means of simulation of a choice in the domain of decisions is introduced.

The article has 17 references.

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USSR

KOCHLADZE, Z. YU., CHAVCHANIDZE, Corresponding Member of the Georgian Academy of Sciences, (Cybernetics Institute of Georgian Academy of Sciences)

"The Feasibility of Developing Conceptual Management Games"

Tbilizi, Bulletin of the Academy of Sciences of the Georgian SSR; Sept 73, pp 565-567

Abstract: The authors demonstrate the feasibility of developing conceptual management games. They show that the concepts related to all physical systems and to their structures and behavior can be defined on a digital compute by the method of the analytical heuristic of concept formation, pattern recognition, and object classification. Some versions of such games and the range of their application are presented.

There are seven references.

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USSR

KOCHLADZE, Z. YU.; CHAVCHANIDZE, Corresponding Member of the Georgian Academy of Sciences V. V. (Cybernetics Institute of the Georgian Academy of Sciences)

"Visual Image Recognition Based on an Analytic Method of Concept Formation"

Tbilisi, Bulletin of the Academy of Sciences of the Georgian SSR; June, 1973; pp 565-7

Abstract: An attempt is made to use the methods of analytic heuristics of pattern recognition and of concept formation in recognizing plane visual images. It is noted that since the characteristics of visual images are -- unlike non-visual images -- topologically interconnected, the method is in need of a modification which takes into account the noninterchangeability of the characteristics. A recognition algorithm for Arabic numerals based on the modified method is proposed by way of illustration.

The article included two figures. There are six bibliographic references.

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USSR

CHAVCHANIDZE, Corresponding Member of the Georgian Academy of Sciences V. V.; MEGRELISHVILI, R. Sh.; EBRALIDZE, T. D. (Georgian Academy of Sciences, Institute of Cybernetics)

"Holography through a Diaphragm with a Small Opening"

Tbilisi, Bulletin of the Academy of Sciences of the Georgian SSR; March, 1974; pp 569-72

Abstract: The authors present a theoretical analysis of the object images produced in a pinhole camera and reconstructed from part of hologram whose dimensions are commensurable with the dimensions of the pinhole camera. The identify of these images is shown mathematically, and the possibility of reconstructing the object projective image from a small part of the hologram in white light was found. On this basis the question of object holography in non-coherent light by means of a pinhole camera was studied.

The article includes six equations. There are three references.

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UDC 62-50

CHAVCHANIDZE, Corresponding Member of the Georgian SSR Academy of Sciences

"On the Construction of the General Theory of Systems as a General Theory of Concept Systems and Control"

Tbilisi, Soobshcheniya Akademii Nauk SSR, Vol 63, No 1, July 1971, pp 49-51

Abstract: Results of the analysis of concepts developed in the artificial intellect theory which can be applied to the general theory of systems are summarized. The new approach suggests a conceptual description consisting of a single general-purpose method for describing systems and structures of random complexity. This description must be based on general-scientific and cybernetic principles and, at the same time, be strictly mathematical. All the objects of system research must be assigned corresponding procedural concepts, which procedure necessitates the construction of a single general theory of modelling of random systems and structures in the form of concept-models. The development of a general theory of concept systems, concept models, and concept control instead of the general theory of systems is suggested. The procedure of concept formation developed in earlier works and based on the construction of a basic algebrized set of realizations of object systems and their behavior, the passage of earlier calculated

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CHAVCHANIDZE, Soobshcheniya Akademii Nauk SSR, Vol 63, No 1, July 1971, pp 49-51

realizations through a filter system, and the construction of a vector-matrix of concepts are described. The unified concept formation procedure will be economical and profitable for objects of science and other fields if it is general-purpose and minimizes the procedures of retrieval, storage, recognition, and classification of objects of the corresponding system by the application of computers, and if each system is based on a set of eclectic and incomplete sets of intuitively understandable concepts. To achieve this, it will be necessary to procedurize the entire practice of defining the technical specifications for the organization and operation of large systems. The concept systems must be man-machine oriented programs for reflecting the natural and artificial systems. The general theory of systems can be constructed only as a general theory of conceptual systems based on programs of artificial conceptual intellect.

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CHAVCHANDIZE, et al., Bulletin of the Academy of Sciences of the Georgian SSR; December, 1972; pp 565-8

the given plane of observation. An exact reproduction of the initial object was observed only under the condition $\Delta\phi = 2\pi n$, where $n = 1, 2, 3, \ldots$ Under other conditions various stages in the formation of pattern self-reproduction were observed.

The article includes two figures and a table. Figure 1 depicts schematically the formation of an image in the process of self-reproduction; Figure 2a shows the image of an initial object with the number of elements quadrupled; Figure 2b shows the image of an initial object with a 16-fold increase in the number of elements; the table shows the structures that result from various differences in the phase of the observed interference patterns.

There are three bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

USSR

BASS, F. G., GUREVICH, YU. G., and CHAVCHANIDZE, O. N., Institute of Radiophysics and Electronics, Academy of Sciences UkrSSR, Khar'kov; Institute of Cybernetics, Academy of Sciences Georgian SSR, Tbilisi

"Nonlinear Propagation of Low-Frequency Spiral Waves in Semiconductors"

Leningrad, Fizika Tverdogo Tela, Vol. 12, No. 8, Aug 70, pp 2365-2370

Abstract: The passage of a low-frequency spiral wave pulse incident on a semi-infinite semiconductor is studied. The authors had previously developed a theory of nonlinear propagation of electromagnetic waves with a frequency $\omega > \nu_e$, where ν_e is the frequency of collisions between current carriers and the scattering centers with energy transfer. This article studies the case of propagation of strong electromagnetic waves with a frequency $\omega \leq \nu_e$ and is limited to weakly attenuating waves which are of two types: a wave propagating in a semiconductor in the absence of a magnetic field and a spiral wave. If the magnetic field is absent, the wave length in the semiconductor is determined by the formula

$$\lambda = c/\omega\sqrt{\varepsilon_0} ,$$

where ε_0 is the dielectric permeability of the lattice and c is the velocity of light

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BASS, F. G., et al, Fizika tverdogo tela, Vol. 12, No. 8, Aug 70, pp 2365-2370

in a vacuum. In typical semiconductors with one type of carrier $\varepsilon_0 \sim 16$ and $\nu_e \sim$ $\sim 10^9$ sec^{-1}, and therefore the frequency of the wave must be 10^8 sec^{-1}. The wave length λ is then equal to approximately 10^2 cm and the attenuation is at least an order greater; for any realistic sample dimensions the problem does not have any sense and therefore only the spiral wave remains. It is shown that the frequency width of the wave pulse is compressed under some mechanisms for the scattering of an electron pulse due to heating of the electrons and the width expands under other scattering mechanisms. If electrons are scattered by acoustical phonons, heating of the carriers leads to a sharp compression of the frequency width of the pulse. It is also shown that the propagation of the basic harmonic of a monochromatic spiral wave of low frequency is described by formulas for the propagation of a high-frequency spiral wave.

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CHAVCHANIDZE, O. N.

"Electromagnetic Wave Amplification in Semiconductor Plasmas"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 2, 1970, pp 534-538

Abstract: In earlier papers it had been shown that the diffusion and thermal conductivity suppress the development of weak signal instability in semiconductors independently of the sign of the differential and conductivity of the medium. In another paper, however, this conclusion was contradicted by the statement that the diffusion has by far the major effect on the increase of the wave strength only for positive differential conductivity, while for negative diffusion and conductivity the development of drift instability is promoted. This latter paper obtained its conclusions by considering a model. The purpose of the present paper is to help resolve this conflict by analyzing the drift instability of the waves with no models. It does this by examining the kinetic problem of propagating electromagnetic waves with the spatial nonuniformities of the system taken into account. The cases of large and intermediate electron concentrations are considered. It is shown that wave amplification is promoted
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CHAVCHANIDZE, O. N., Fizika Tverdogo Tela, Vol 12, No 2, 1970, pp 534-538

by the diffusion for high and medium concentrations for all real dispersion mechanisms in negative differential conductivity. In positive differential conductivity the waves are attenuated. In an appendix it is demonstrated that in the case of inelastic electron dispersion in optical phonons, the differential conductivity may be negative. The author expresses his gratitude to F. G. Bass, V. M. Yakovenko, and G. A. Begiashvili for their comments and advice.

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TITLE--ELECTROMAGNETIC WAVE AMPLIFICATION IN SEMICONDUCTOR PLASMAS -U-

AUTHOR--CHAVCHANIDZE, O.N.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, FIZIKA TVERDOGO TELA, VOL 12, NO 2, 1970, PP 534-538

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SEMICONDUCTOR PLASMA, ELECTRONIC AMPLIFICATION, THERMAL CONDUCTIVITY, DIFFUSION COEFFICIENT, ELECTROMAGNETIC WAVE PROPAGATION, DRIFT MOBILITY, ELECTRON DENSITY, SEMICONDUCTOR CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1395 STEP NO--UR/0181/70/012/002/0534/0538

CIRC ACCESSION NO--AP0125042

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

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CIRC ACCESSION NO--AP0125042

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EARLIER PAPERS IT HAD BEEN SHOWN THAT THE DIFFUSION AND THERMAL CONDUCTIVITY SUPPRESS THE DEVELOPMENT OF WEAK SIGNAL INSTABILITY IN SEMICONDUCTORS INDEPENDENTLY OF THE SIGN OF THE DIFFERENTIAL AND CONDUCTIVITY OF THE MEDIUM. IN ANOTHER PAPER, HOWEVER, THIS CONCLUSION WAS CONTRADICTED BY THE STATEMENT THAT THE DIFFUSION HAS BY FAR THE MAJOR EFFECT ON THE INCREASE OF THE WAVE STRENGTH ONLY FOR POSITIVE DIFFERENTIAL CONDUCTIVITY, WHILE FOR NEGATIVE DIFFUSION AND CONDUCTIVITY THE DEVELOPMENT OF DRIFT INSTABILITY IS PROMOTED. THIS LATTER PAPER OBTAINED ITS CONCLUSIONS BY CONSIDERING A MODEL. THE PURPOSE OF THE PRESENT PAPER IS TO HELP RESOLVE THIS CONFLICT BY ANALYZING THE DRIFT INSTABILITY OF THE WAVES WITH NO MODELS. IT DOES THIS BY EXAMINING THE KINETIC PROBLEM OF PROPAGATING ELECTROMAGNETIC WAVES WITH THE SPATIAL NONUNIFORMITIES OF THE SYSTEM TAKEN INTO ACCOUNT. THE CASES OF LARGE AND INTERMEDIATE ELECTRON CONCENTRATIONS ARE CONSIDERED. IT IS SHOWN THAT WAVE AMPLIFICATION IS PROMOTED BY THE DIFFUSION FOR HIGH AND MEDIUM CONCENTRATIONS FOR ALL REAL DISPERSION MECHANISMS IN NEGATIVE DIFFERENTIAL CONDUCTIVITY. IN POSITIVE DIFFERENTIAL CONDUCTIVITY THE WAVES ARE ATTENUATED. IN AN APPENDIX IT IS DEMONSTRATED THAT IN THE CASE OF INELASTIC ELECTRON DISPERSION IN OPTICAL PHONONS, THE DIFFERENTIAL CONDUCTIVITY MAY BE NEGATIVE. THE AUTHOR EXPRESSES HIS GRATITUDE TO F. G. BASS, V. M. YAKOVENKO, AND G. A. BEGIASHVILI FOR THEIR COMMENTS AND ADVICE.

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USSR UDC 621.375.82

GAPRINDASHVILI, KH. I., GVATUA, SH. SH., MUMLADZE, V. V., KHANEVICHEV, V. A., and CHAVCHANIDZE, V. V.

"Threshold, Time, and Spectral Characteristics of a Fiber Laser"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 25-30 (English summary) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D833 from authors' atstract)

Translation: The article studies the time character and spectral composition of radiation in the prethreshold, threshold, and superthreshold states of a fiber laser with the core doped with 6 wt.% Nd_2O_3. In the subthreshold stage, simultaneously with a decrease in the pulse length, there is a narrowing of the radiation spectrum of the active glass fiber to a quantity less than 100 Å. At the threshold pumping energy the stimulated radiation is of a quasicontinuous character and has a pulse length $\Delta\tau$=[illegible] microseconds and a half-width $\Delta\lambda \leq 0.317$ Å. It is shown experimentally that all the time-spectral stimulated-radiation characteristics known for solid-state lasers are realized relatively simply in a fiber laser. [illegible]

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USSR

CHAVCHANIDZE, V. V., Corresponding Member of the Geor gian Academy of Sciences (Cybernetics Institute of the Georgian Academy of Sciences)

"A Group of Axioms of Probability Fields for Proability Amplitudes (K_2 Group)"

Tbilisi, Bulletin of the Academy of Sciences of the Georgian SSR, Sept 73, pp 573-576

Abstract: The author constructs a new group (K_2) of axioms for a probability field based on Kolmogorov's group of axioms. In addition to the twomain axioms informationally equivalent to K_1, several new axioms are introduced: the K_2-III axiom for comparison of numerical measures with events; the K_2-IV rate-setting axiom; the K_2-V axiom of additivity; and the K_2-VI axiom of σ-additivity. Quantum mechanics, as the mechanics of a microcosm, is taken as one of the interpretations of the K_2 group.

The article includes 10 equations. There are seven references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520012-7

E. Mathematical Modelling of Thought Processes

USSR

CHAVCHANIDZE, V. V.

"Foundations of the Theory of Making of Conceptual Decisions in an Artificial Intellect System"

Soobshch. AN GruzSSR [Reports of Academy of Sciences Georgian SSR], 1973, Vol 70, No 2, pp 301-304 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V779).

Translation: A special class of decisions, so-called conceptual decisions, are studied on the basis of the theory of artificial conceptual intellect. If experimental data can be used to "calculate concepts", it is possible to model the act of "outputting" a decision. The concept of the bifunctional is introduced as a mathematical means for rough modeling of selection in the space of decisions.

It is shown that the "drawing" (in the sense of the Monte Carlo method) of nonessential characteristics allows various decisions to be constructed. The production of canonical representations of concepts is the basic form of accumulation of experience and its machine storage. Purely deterministic (logical) or random decisions include random-deterministic decisions as the most general form of representation of artificial realizations of concepts ("conceptual decision").

1/1 Author's view

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